POINT REYES RADIO COMPASS STATION, BARRACKS HABS No. CA-2898
(Point Reyes Navy Direction Finder Station, Barracks)
(Ben Davis House)
23250 Sir Francis Drake Boulevard
Point Reyes National Seashore
Inverness Vicinity
Marin County
California

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historical American Buildings Survey
National Park Service
Pacific West Region
Department of the Interior
Seattle, Washington 98104

POINT REYES RADIO COMPASS STATION, BARRACKS
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(Ben Davis House)

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Name: Point Reyes Radio Compass Station, Barracks. The station was also knows as the Navy Directional Finder Station or the Navy Compass Station. In 2013, the structure is called the Ben Davis house for its current tenant.

Location: 23250 Sir Francis Drake Boulevard, Inverness Vicinity, Marin County, California. The building is located on a bluff above Point Reyes Beach in Point Reyes National Seashore. The site is accessed by traveling along Sir Francis Drake Boulevard west from Inverness, and turning right onto the private driveway that accesses the property.

The barracks are located at latitude 38.035873 and longitude -122.994039. The coordinates were obtained on February 21, 2014, digitized from 2007 aerial imagery. The accuracy of the coordinates is +/- 5 meters. The coordinates datum is North American Datum 1983.

Present owner/occupant: The National Park Service owns the property. It is currently leased to occupant Ben Davis as a private residence.

Present use: Private residence.

Significance: The Point Reyes Radio Compass Station was one of three radio compass stations that worked in tandem to fix the location of ships in the vicinity (collectively the three stations were known as the San Francisco Bay entrance group). Shipwrecks were common prior to the establishment of the stations, due to the dense fog, rocky shores, and hidden reefs along the northern California coast. After the station's establishment, however, mariners were able to determine their precise location even in darkness or fog, and shipwrecks nearly ceased.

Historian
Christy Avery, National Park Service, Pacific West Regional Office-Seattle

Project information
This Historic American Buildings Survey Report was completed in September 2013. The building is currently threatened by ocean bluff erosion, and Historic American Buildings Survey recordation was undertaken in an effort to document the building before the park removes it.

Part I: Historical Information

A: Physical History

1. Date of Erection: 1923

2. Architect: Department of the Navy

3. Original and Subsequent Owners and Uses: The barracks building was used as housing for the men that staffed the radio compass station at Point Reyes beginning in 1923. The building was sold as a vacation property after World War II. The present owner, Ben Davis, purchased the building and the site in 1962, and sold it to the federal government for inclusion in Point Reyes National Seashore in 1977. Ben Davis still occupies the house under a lease in 2013.

4. Builder, contractor, suppliers: Unknown

5. Original plans and drawings: None have been located, despite inquiries to four branches of the National Archives and Records Administration.

6. Alterations and additions: Ben Davis greatly modified the interior of the building at an unknown date. The building originally contained a ladder and a small opening to the second floor, where the station's staff slept, but Ben Davis built an interior stairwell to access the second floor. Davis also removed the walls that originally divided the first floor into five rooms.[1]

B: Historical Context

The U.S. Navy constructed a Radio Compass Station at Point Reyes in 1921 as part of the effort to prevent shipwrecks near San Francisco Bay. Ninety-five ships had wrecked in the treacherous waters near the bay's entrance before 1920; twice that many had capsized or been stranded. Fog was the primary cause of these incidents. Point Reyes, about forty miles north of the Golden Gate, is one of the foggiest places in North America, and the fog can extend for hundreds of miles along the coast. Rocky shores, reefs, and strong currents and tides also contributed to the dangerous conditions. There were few safe anchorages along this section of coast where ships could wait for fog to lift or tides to change. The entrance to San Francisco Bay was narrow and the area's hills masked the opening, so mariners often had a hard time finding the entrance in fog.

The federal government had prioritized navigational aids in and near San Francisco Bay since the mid-nineteenth century due to the poor conditions along the coast and the heavy ship traffic headed to the city. Before lighthouses and fog signals were installed, mariners navigated by dead reckoning (estimating their position based on geographical observation and timing), but this proved treacherous along the California coast. The discovery of gold in the foothills of the Sierra

[1] Interview with Ben and Pat Davis, January 12, 1976. Point Reyes National Seashore Archives.

Nevada Mountains made San Francisco the gateway to the gold fields, and the town turned into a booming port city. Most people and almost all hard goods arrived in San Francisco by sea; the city's waterfront was described as "a forest of masts."[2] Not only was the bay the busiest harbor on the West Coast; the U.S. government recognized the bay as the best natural harbor on the coast and knew that navigational aids were essential for the economic growth of the area. The first lighthouse along the Pacific Coast was established in San Francisco Bay at Alcatraz Island in 1854. The government also built lighthouses at Point Reyes, in 1870, at Point Montera, about twenty-five miles south of San Francisco, in 1875, and at the Farallon Islands, twenty miles from the Golden Gate, in 1855.[3]

However, these structures could not prevent all shipwrecks along this treacherous section of coast. Thick fog made light signals impossible to see. Audible fog signals often deflected in the fog, leaving mariners uncertain about their proximity to shore.[4] In 1878, the U.S. Life Saving Service (the agency later became the Coast Guard) opened the Golden Gate Park Life-Saving Station south of the bay's entrance. The station was built with the purpose of rescuing shipwrecked soldiers, and it served the most heavily trafficked route to the bay, from the south. In 1890, the service opened a lifesaving station on Point Reyes Beach, three miles north of the lighthouse on the Point. Though fewer ships approached the bay from the north, this beach was known as the foggiest location on the West Coast, and the Point Reyes headlands jutted out nearly ten miles into the ocean, providing a physical obstacle that was difficult to see in the fog. While these stations did rescue crewmen from ships that had capsized or wrecked, they were not able to help mariners navigate the dangerous waters of the area.[5]

The advent of radio communications finally gave mariners a new option for determining a ship's exact position, even in thick fog and darkness. The Navy began using radio compass stations to fix ships' locations in 1915, and by 1920, the agency had nineteen stations under construction along the West Coast. The radio compass stations were meant to aid ship captains in piloting near shore, and so were established at or near harbor entrances along the Pacific Coast. Stations were located at the entrance to the Strait of Juan de Fuca in Washington State, at the mouth of the Columbia River, at Santa Barbara Channel, and at San Pedro and San Diego as well as near San Francisco Bay. The stations served merchant as well as military traffic, and were also called radio direction finder stations.[6]

In order to obtain its location via a radio compass station, a ship with radio equipment would call one of the radio compass stations using Morse Code and a particular wavelength (375kc or 800m). Staff inside the on-shore radio compass station maneuvered a loop antenna—a rectangular coil of wire housed in a protective, non-conductive case—in order to pick up the

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[2] James P. Delgado*, Gold Rush Port: The Maritime Archeology of San Francisoco's Waterfront* (Berkeley: University of California Press, 2009) 6-7.
[3] Japes P. Delgado and Steven A. Haller, *Sumberged Cultural Resource Assessment: Golden Gate National Recreation Area*, 1989.
[4] Peter Evans, *Shipwrecks and Strandings on the Coast of Point Reyes*, M.A. Thesis, San Jose State University, 1969.
[5] Dewey Livingston, 71-73.
[6] U.S. Navy Hydrographic Office, *Radio Aids to Navigation*, (Washington D.C: Government Printing Office, 1935), 273-275.

ship's signal. An operator would rotate the antenna, which contained gears for revolving, in order to establish the strongest signal—thus the designation, "radio compass." A pointer and a scale were additional tools that helped staff establish the location. The antenna determined the direction from which the signal originated in order to establish the ship's location.[7]

Radio compass stations worked in tandem with two other stations. The first station to receive a ship's signal notified their sister stations to take a bearing on the ship (only two stations were necessary to take a cross bearing, but a third was employed to check the accuracy of the other two). The three bearings were transmitted back to the ship, and in this way the ship's captain could determine its location even in fog or darkness.[8] Each station was set so that there were no natural obstacles between their antenna and the shore, which would have bent the radio waves and rendered the bearings useless.[9] The readings were not perfectly accurate; bearings taken near sunrise and sunset could sometimes be unreliable. Still, it worked better than relying on lighthouses and foghorns. In return for this free service, ships were asked to radio the compass stations in clear weather, when they did not need the assistance, and report the results to the Navy Department, in an effort to continually improve the station's work.[10]

In 1921, the Navy opened a radio compass station at Point Reyes, adjacent to the lifesaving station. The spot was treeless and exposed, with no physical barriers for radio waves. The agency leased 3.5 acres of land from the Mendoza Family and built the station building; two years later the Navy constructed a larger building, uphill from the station, that served as barracks for crew members. The Point Reyes Navy Radio Compass Station worked in tandem with stations at Point Montera and the Farallon Islands to guide ships approaching San Francisco Bay. The three stations formed a triangle, and were known as the San Francisco Bay Entrance Group. A ship first radioed to an officer at the Farallon Island station using a three letter code; after the Point Reyes and Point Montera stations estimated the ship's position, bearings were sent back to the Farallon Islands, and the ship's exact position was calculated there. Staff would then radio the position back to the ship.[11]

The radio compass station building at Point Reyes was originally set on the hillside below the barracks. The radio station contained less than 250 square feet on the first floor, with a second story (only 10'4 ½" x 10'3 ½") on the east half of the structure. The second story probably served as a lookout tower. The first crew members lived in shacks without indoor plumbing or insulation. Men slept on hammocks, then joined staff in the adjacent Lifesaving station for dinner in their facility.[12] Sometime in 1945-1946 the building was moved further up the hillside, due to bluff erosion made worse by a storm in the winter of 1945.[13]

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[7] Ibid., 1-3; 273-275.
[8] Ibid., 273-275.
[9] Lt. Ellery W. Stone, "Piolting by Radio," *Pacific Marine Review,* Vol. 17 (July 1920), 67-70.
[10] *Radio Aids to Navigation*, 273-276.
[11] U.S. Navy Hydrographic Office, *Radio Aids to Navigation,* (Washington D.C: Government Printing Office, 1935), 5.
[12]
[13] Interview with Ben and Pat Davis, January 12, 1976. Point Reyes National Seashore Archives.

The two-story barracks building was built in 1923. Five staff members lived upstairs, while the cook lived on the first floor. This was typical of Navy barrack buildings of the time; the ground floors usually included a kitchen and mess hall, while the upper floor was reserved for sleeping.[14] Other ancillary structures built over the years, joining the radio compass station building and the dormitory, include a workshop, a pumphouse, a concrete power house, a chicken coop, and a sentry shack.

When the radio compass stations first came into service, many ships (both merchant and military) distrusted the new technology and refused to accept the bearings provided. That changed in 1923 after the Honda Point disaster, when seven destroyers ran aground along the central California coast after the squadron commander ignored a radio stations' bearings. In part because of incidents such as this, mariners came to trust the bearings calculated by radio direction finder stations, and the incidence of shipwrecks along the California coast nearly ended.[15]

The Coast Guard assumed operation of the station in 1941, and members of the Coast Guard patrolled the shores of Point Reyes during World War II from the spot. The property lease expired after World War II, and the Mendoza family sold the compound as a vacation home. In 1962 local residents Ben and Patricia Davis bought the site.[16] They sold the property to the National Park Service in 1977, though the terms of sale included a fifty year lease, and Ben Davis' residency continued through 2013.

Part II: Architectural Information

A: General Statement

1. Architectural Character: The barracks building is a two-story, 2800 s.f. vernacular building constructed in 1921. While the Navy often constructed buildings using standardized plans, it is unclear if this building was based upon such a plan. The building originally served as barracks, but it has been a private home since the early 1960s. While as late as 2012 the building was set back from the cliff edge, the barracks are now perched on a bluff overlooking the ocean, due to the fact that the bluff has eroded nearly fifty feet in 2013.
2. Condition of Fabric: The building itself is currently in fair condition, but is threatened by erosion on the bluff.

B: Description of Exterior:

The house is (dimensions). Sea-green asbestos shingles have been laid over the original 3"-drop wood siding. Some of the shingles are missing, revealing the 3" wood drop siding underneath. A wood boardwalk runs along the south and west sides of the house, as well as in between the garage and the house, and along the north and west sides of the garage.

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[14] John S. Garner, *World War II Temporary Military Buildings: A Brief History of the Architecture of Military Cantonments and Training Locations in the United States*, (Army Corps of Engineers, March 1993), 25.

[15] Department of the Navy, Naval Historical Center, "Honda Point Disaster." Online resource at http://www.history.navy.mil/photos/events/ev-1920s/ev-1923/hondapt.htm, accessed September 2013. ; "Life and Death on the Great Beach," Point Reyes Historian IV:4 (Spring 1980), 451-453.

[16] "Life and Death on the Great Beach," Point Reyes Historian IV:4 (Spring 1980), 451-453.

Porches: There are three enclosed porches on the building. The most striking is the two-story enclosed porch on the south elevation of the building. It extends **X feet** from the house and is divided into three bays, with three sets of three fixed eight-light windows on the upper story and two sets on the lower story. A set of wood doors, each with twelve-light windows leads to the porch.

An enclosed porch with a shed roof also occupies the center of the building's west side. It is accessed by two wood doors, each with nine-light windows. Sidelights occupy the space between the doors. Three steps lead from the wood boardwalk to the porch door. The third enclosed porch is on the building's east side, and is accessed by a nine-light wood door.

Doors: Doors are set on three sides of the building. On the east side, there is a wood door with a nine-light window that is used, in 2013, as the front door. It leads into a small enclosed porch that may be an addition. Two wood doors with nine-light windows lead into the porch on the building's west side. Double wood doors with twelve-light windows lead into the building's enclosed porch on the south side.

Windows: The building is characterized by the extensive use of windows. The west side of the barracks contains one fifteen-light fixed window and three 6-over-6 windows on the upper story. Two pair of six-over-six sash windows flank the porch on this side.

The windows on the south side of the building are particularly striking. A two-story enclosed porch, lined with windows, occupies the entire side. On the upper story, these include three sets of three fixed eight-light windows; on the lower story are two additional sets. An eight-light horizontal transom occupies the space above the doors. Two additional sets of three fixed eight-light windows occupy the sides of the porch.

Windows on the east side of the building include one sliding window, two six-over-six sash windows on the upper story, and four six-over-six sash windows set at irregular intervals on the first story. Two six-over-six sash windows occupy the upper story of the building's north side, while one set of two six-over-six sash windows are centered on the lower story of this side.

Roof: The roof is a very low-pitched hipped roof with overhanding eaves. Wood gutters are set under the eaves.

C. Description of Interior

Access to the interior was not permitted by the owner for purposes of this report. The interior has been modified by its current owner. The building originally contained a ladder and a small opening to the second floor, where the station's staff slept, but Ben Davis built an interior stairwell to access the second floor. Davis also removed the walls that originally divided the first floor into five rooms.[17]

[17] Interview with Ben and Pat Davis, January 12, 1976. Point Reyes National Seashore Archives.

D: Site:
The house is accessed by a narrow asphalt driveway that leads northwest from Sir Francis Drake Boulevard. A sentry shack, a workshop, a residential pump house and a concrete power house occupy the area north of the drive, between the barracks and Sir Francis Drake Boulevard. A garage, a corral, and a container are set south of the drive.

A two-car garage is set just north of the building; the driveway widens and then dead ends into the garage. Two overhead garage doors provide vehicle access. The garage is clad with 3" drop siding, and topped with a low pitched hipped roof. Exposed rafter tails support the eaves. The west side of the garage includes four fixed light windows. An addition on the garage's south side has a sloped roof and a fixed, horizontal sight-light window. A small shed roof addition is set on the south side of the garage, and is accessed from the driveway via a set of sliding glass doors. A wood partition runs north-south between the garage and the barracks; a wood door allows access through the partition and into the space between the house and the garage. A retaining wall made of stacked concrete pieces delineates the eastern side of the driveway near the garage.

The site is surrounded by ice plant, an invasive, low-growing succulent perennial, as well as sedum and coprosma.

Part III: Sources of Information

Archives
Point Reyes National Seashore Archives, Point Reyes National Seashore, California

Secondary Sources
Delgado, James P. and Steven A. Haller. *Submerged Cultural Resource Assessment: Golden Gate National Recreation Area,* 1989.

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Livingston, Dewey. *The History and Architecture of the Point Reyes Lifeboat Station.* National Park Service: 1991.

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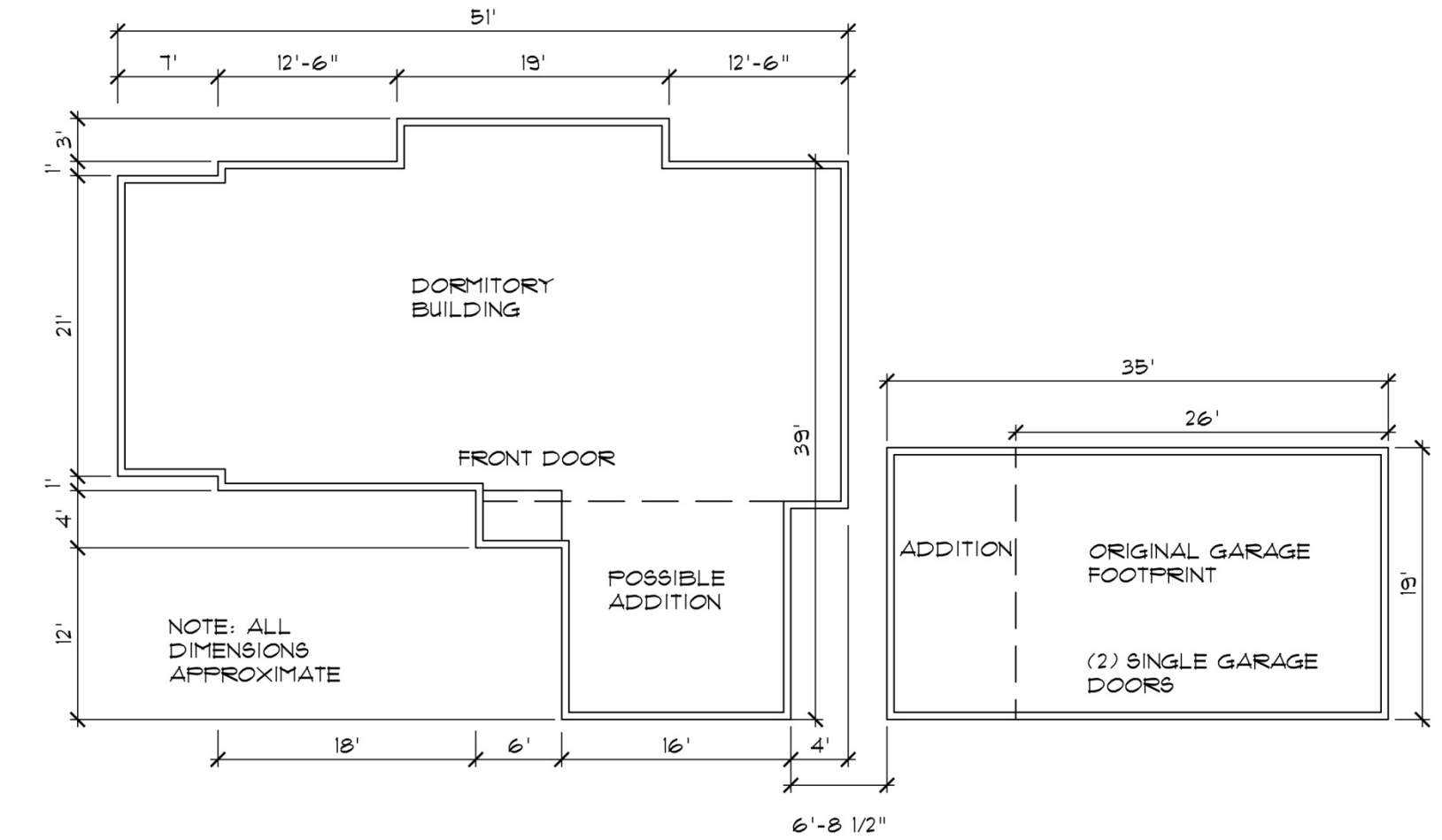
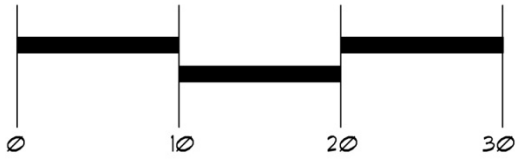
Stone, Lt. Ellery W. "Piloting by Radio," *Pacific Marine Review*, Vol. 17 (July 1920).

U.S. Navy Hydrographic Office. *Radio Aids to Navigation.* Washington D.C: Government Printing Office, 1935.

Point Reyes Radio Compass Station, Barracks. Ca. 1946.

Point Reyes Radio Compass Station. The barracks are on the left. The radio compass station itself is on the upper right. It was moved to this location around 1946.





SCALE: 1"=10'-0"

NORTH

BUILDING FOOTPRINT SKETCH
NAVAL RADIO COMPASS STATION

POINT REYES NATIONAL SEASHORE
MARIN COUNTY, CALIFORNIA